The development of political knowledge in adolescence: Which mediating institutions have the strongest influence?

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Abstract

Recent research on the development of political knowledge often focuses on the role of one specific mediating institution in this process. In this paper, we argue that it is important to put the role of different mediating institutions (i.e. parents, peers and mass media) into a comparative perspective in order to explain the influence of each mediating institutions in a more systematic way. Is the content (the information-richness) of the mediating institutions crucial for the development of political knowledge, or is it especially important that citizens are exposed to political views and knowledge in an interactive way? We investigate the development of political knowledge and the role of these different mediating institutions among adolescents, as young citizens are in a phase in life in which knowledge on societal issues is fully being developed. Using data from a recent large scale study on among 3,426 adolescents in Belgium (Parent-Child Socialization Study 2012), we simultaneously analyze the role of family, peers and mass media in the development of political knowledge. This points at the importance of an information-rich context. Interactive exposure to political information is not a necessary condition for the development of political knowledge.

Keywords: political knowledge, socialization, adolescents

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Introduction

Within the debate on the linkages between citizens and politics, political knowledge is often interpreted as one of the main requirements for legitimate political representation. It is argued that political knowledge is essential to participate and to make vote decisions in a well-considered way (Delli Carpini & Keeter, 1996; Furlong, 2009; Galston, 2001; Gibson & Hamilton, 2013; Grönlund & Milner, 2006). Citizens who hold incorrect or limited views on politics are less likely to come to decisions consistent with their own preferences and interests (Grönlund & Milner, 2006; Howe, 2010). Recently, literature has expressed concerns about a growing political unawareness among citizens and a growing 'knowledge gap' between different groups in society (Fraile, 2010, 2013; Kwak, 1999). Particularly scholars focusing on younger citizens acknowledge the concern of a growing knowledge deficit leading to a growing level of disengagement among young citizens (Howe, 2010). Studying the development of political knowledge among young citizens is therefore of continuing importance, as those with lower levels of political knowledge will be among the first groups to fall by the wayside of the democratic electoral system (Wattenberg, 2002).

Concerning political knowledge, Jennings (1996) demonstrated that, as is the case for political attitudes, the development of political knowledge follows a 'crystallization process'. When analyzing the development of political knowledge throughout life, he found a high level of stability at the individual-level *"(…) rivaling or exceeding [the stability level] found in extraordinary salient, concrete, and reinforced political attitudes, such as party identification and issues tapping into deeply held value systems*" (Jennings, 1996, p. 250). This high stability provides us with an additional argument to study young citizens, as also for political knowledge, adolescence is the phase in life in which the basis for this knowledge is formed.

For these reasons, this paper will focus particularly on the development of political knowledge among adolescents. So far, studies on the development of political knowledge have often focused on the role of one *mediating institution* at a time. A lot of research attention has been devoted to either the importance of mass media or to one's direct social network (Delli Carpini & Keeter, 1996; Eveland, 2004; Fraile, 2010; Galston, 2001; Niemi & Junn, 1998). The central argument in this paper is that it is essential to put the role of different mediating institutions into a comparative perspective in order to

explain the influence of each of them in a more systematic way. More specifically, in this paper we take into account the role of two elements that are expected to contribute to the development of political knowledge: the content of the mediating institutions (whether this is a more or less information-rich setting) and the way of exposure to the political views and knowledge that are present in the mediating institutions (interactive or non-interactive exposure). The importance of each element will be studied by investigating the role of three different mediating institutions that are found to stimulate the development of political knowledge in different ways: an information-rich non-interactive setting (media), a non-information-rich interactive setting (peers) and a setting which is both information-rich and interactive (parents).

In an *information-rich setting*, adolescents are exposed to a mediating institution that provides them with a lot of new political information. A clear example of such an information-rich setting is a setting in which news media is often used. An *interactive setting* is a setting in which there is a high frequency of political discussion, for instance with peers. A combination of interactively discussing politics with a discussion partner (interactive setting) that has the potential to provide new information (information-rich setting) is found when adolescents discuss politics with discussion partners who have a higher level of political knowledge then themselves. This would very likely be the case when adolescents discuss politics with their parents, as they tend to have a higher level of political knowledge then themselves (McIntosh, Hart, & Youniss, 2007). To summarize, the central aim of this paper is to understand which of these elements explains the role of mediating institutions in the development of political knowledge among adolescents. In other words, we investigate whether it is more important to have an information-rich setting, or whether being part of a setting in which politics is frequently discussed contributes more to the development of political knowledge among adolescents.

First, we will present the theoretical framework on the conceptualization of political knowledge, followed by an overview of the current literature on the role of mediating institutions in the development of political knowledge. We present an overview of the way in which media news, family interaction and interaction with peers can foster the development of political knowledge by contributing to the development of an information-rich and/or interactive setting. Second, the data

used from the Parent-Child Socialization Study (2012) will be presented. Third, we will present the multilevel regression models testing the effects of peer discussion, family interaction and mass media and discuss our results.

Studying political knowledge

Political knowledge is a key concept in political science, as it can be interpreted as a necessary condition to connect citizens with the complex political system (Dalton, McAllister, & Wattenberg, 2000; Delli Carpini & Keeter, 1996; Norris, 2000). A basic understanding of the political system is an essential civic skill and therefore, over the past decades, political knowledge has been extensively studied. A first central element within this stream of literature is the debate on the conceptualization of political knowledge. Within studies on political knowledge, a diversity of conceptualizations has been proposed, going from knowledge on government and policy, to cognitive shortcuts for voting behavior, to broad measures of knowledge on a wide range of social issues and political issues (Norris, 2000). To ascertain comparability with previous studies, in this paper we opt for the most empirically validated and comprehensive conceptualization of political knowledge, proposed by Delli Carpini & Keeter (1996), which is still primarily used in most recent studies (e.g. Fraile, 2010; Mondak & Anderson, 2004). In this conceptualization, political knowledge is thought of as the ability to understand the rules of the game (what government is), the substance of politics (what government does), and to know the people and parties in politics (who embody the government) and thus provides a broad range of factual knowledge indicators (Delli Carpini & Keeter, 1996).

Information-rich and interactive mediating institutions

In this study, we will analyze the development of political knowledge among young citizens. Therefore, we focus on the political socialization process in which a number of mediating institutions are distinguished. Following Flanagan (2013), mediating institutions are settings in which young citizens develop cognitive capacities to deal with abstract concepts and social issues in order to be able to question and reinterpret the social principles in the society they are part of. In this paper, the aim is to bring together the role of three of these settings that are all found to contribute in their own way to

the development of political knowledge: mass media, peers and family, which will be briefly described below. We will use these three cases to study the importance of the content (information-richness of the context) and the way of exposure to political views and information (interactive or non-interactive) for the explanation of the development of political knowledge in different settings.

The first mediating institution we study is mass media. This institution contributes to the development of an *information-rich setting*. The link between mass media use and political knowledge has been extensively studied over the past decades, leading to quite diverse results (Fraile, 2010). On the one hand, it is argued that media use does not contribute to the development of political knowledge and actually decreases citizens' levels of political knowledge because of the lower quality of information and time displacement: citizens who spend time watching television, cannot spend time on civic engagement or cognitive development (Putnam, 2000; M. J. Robinson, 1976). However, this view has been regularly qualified by noting that it is not the frequency of media exposure as such, but *the content* of the medium that matters (Howe, 2010; Prior, 2007). Media use can effectively foster political knowledge if mass media are used to follow the news. Other studies have underscored the importance of *the medium*, arguing that exposure to television is less effective than following the news in newspapers because users of print media have higher levels of cognitive skills (Delli Carpini & Keeter, 1996). The digital revolution obviously also entails a whole spectrum of new possibilities to follow news, for instance by using social media. So far, however, there is little evidence that these new media forms would contribute to the development of political knowledge in a different way than more traditional media. As was the case before internet was widely accessible, prior political knowledge, political interest and attention to politics in traditional media formats matter more (Dimitrova, Shehata, Stromback, & Nord, 2011). Mass media can thus be categorized as an information-rich mediating institution as it provides information on political issues when citizens use it to follow the news. As mass media provide information, but as there is no direct interplay between individual media users and the media, this mediating institution is categorized as information-rich but non-interactive.

The second mediating institution in this study is the social network setting of interaction with peers which contributes to the development of an *interactive setting*. For adolescents, discussing politics can enhance the development of political knowledge (Galston, 2001; Niemi & Junn, 1998).

The idea is that taking part in a political discussion stimulates information processing as prior information held by each discussant is activated, recapitulated and consolidated through discussion (Eveland, Hayes, Shah, & Kwak, 2005). Particularly for discussions with peers, this component of actively processing one's own prior knowledge through interaction can be a useful mechanism through which conversations can contribute to the development of political knowledge as a relationship of confidence and an open discussion climate exists among peers. However, Eveland (2004) adds an important condition to this process, namely that for these conversations to successfully contribute to the development of political knowledge, accurate information needs to be shared. As peers often have a similar knowledge level and similar interests, this mediating institution is therefore categorized as less information-rich.

For this reason, we include as the third mediating institution the small social network setting of the family. This mediating institution contributes both to the development of an *interactive setting* as to the development of an *information-rich setting.* Mcintosh, Hart and Younis (2007) found that discussing political issues within the family is one of the strongest predictors of political knowledge among adolescents. The family is one of these settings in which the presence of politics (through political discussion) can produce an information-rich context in which young citizens are more likely to learn (Flanagan, 2013). Political discussion within a family setting is found to contribute to the development of political knowledge, particularly when the parents themselves have more political knowledge and thus are capable of shaping an information-rich political learning environment (McIntosh et al., 2007). In this setting, discussion generated elaboration can take place as the higher knowledge level of the parents can be transmitted to the adolescent during a discussion (Eveland, 2004). Therefore, discussion does not only help to process and activate the prior knowledge held by adolescents; the knowledge of the parents is also included in the conversation.

Hypotheses

According to the theory of discussion generated elaboration, learning during discussions seems to be particularly successful when one's conversation partner has more knowledge on the topic that is discussed. Studies by McIntosh, Hart & Youniss (2007) and Eveland (2004) both underscore that political discussion with conversation partners such as parents or peers will contribute more to the development of political knowledge when the other partner is better informed and thus able to share and even transmit his/her knowledge more effectively. It is thus argued that more knowledgeable discussion partners can contribute more to the development of an information-rich (social network) setting. We expect that, at this age, parents will most frequently be more knowledgeable conversation partners than peers and will contribute more to the development of an information-rich context than peers (McIntosh et al., 2007). This is the main reason why we expect political discussion with parents to be more effective in the development of political knowledge among adolescents than political discussion with peers. The same reasoning holds for the use of media to follow the (political) news. This will contribute more to the development of an information-rich context because news media aim at providing information and will therefore have a stronger impact on the development of political knowledge of adolescents than political discussion with peers, who tend to have a similar level of political knowledge as the adolescents themselves. We therefore formulate the first hypothesis (H1): *Being exposed to an information-rich setting has a stronger effect on the development of political knowledge than being exposed to a less information-rich setting.* More specifically, in terms of the mediating institutions that we described above, we expect that following the news in media and discussion with parents will contribute more to the development of political knowledge than discussing politics with peers.

Additionally, we expect that political discussions with parents will contribute most to the development of political knowledge among adolescents. In general, it has been found that parents have a higher level of political knowledge, and can therefore '*serve as an important source of political knowledge that youth can use in constructing their own political knowledge'* (McIntosh et al., 2007, p. 497). While the same can be said about the information-richness of news media, parents are also interactive discussion partners. Parents additionally provide an interactive setting in which knowledge

is activated. This expectation is also in line with previous socialization research in which interaction with parents is found to be one of the most important mechanisms in the development of political preferences (Hooghe & Boonen, forthcoming.; Jennings & Niemi, 1974; Jennings, Stoker, & Bowers, 2009). Following this reasoning, we expect that parents have more potential than following the news in mass media. Exposure to political news does obviously contribute to the formation of an information-rich context, but contains no interactive component. This expectation is in line with previous studies in which mere exposure to media news is found to be less effective in the political learning process than discussing news and politics (Eveland, 2004; J. R. Robinson & Levy, 1986). Therefore, in our second hypothesis we expect that the mediating institution that combines the elements of an information-rich and interactive setting will have a stronger effect on the development of political knowledge than a mediating institution that only contributes to the formation of an information-rich setting. The second hypothesis is therefore formulated as follows (H2): *Being exposed to a setting that is both information-rich and interactive (discussion with parents) has a stronger effect on the development of political knowledge among adolescents than being exposed to setting that is information-rich but non-interactive (news media use).*

Data

To study the impact of different mediating institutions on political knowledge, we use data from the Parent-Child Socialization Study 2012 (Hooghe, Quintelier, Verhaegen, Boonen, & Meeusen, 2012). In this panel study 3,426 15-year old adolescents were surveyed in spring 2012 using a self-administered paper survey at school. The survey contained questions on all the mediating institutions of interest and a relatively extensive battery of knowledge questions. The data were gathered in 61 randomly selected schools in the Dutch speaking part of Belgium and each time the whole 10^{th} grade enrolled in the selected educational track in each selected school was surveyed. The schools were sampled using a stratified sample based on the educational track provided at the school and after the fieldwork the data were controlled for the number of pupils that participated in the survey according to the educational track in which they were enrolled. Based on this test, weights were calculated for

instance to take the slight overrepresentation of adolescents in artistic education into account and to take the underrepresentation of adolescents in vocational education into account. The calculated weights also take into account the proportion of males and females in each educational track. These weights range between 0.65 and 1.22 which are acceptable deviations from the population and will be used throughout the analyses.

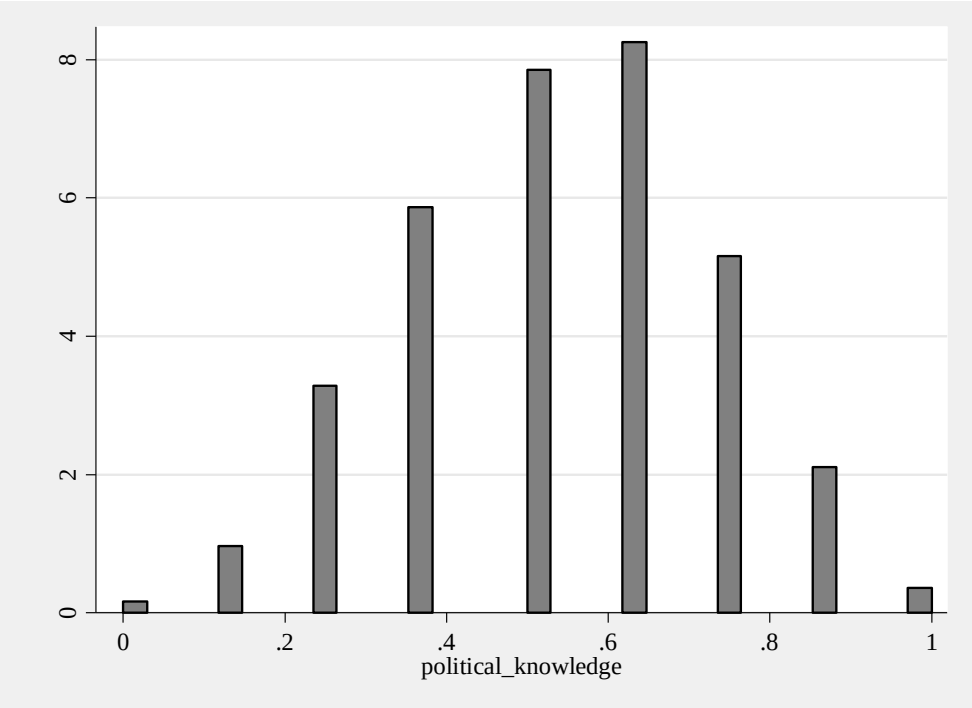
Scale construction and used variables

To build a valid measurement for political knowledge, three elements were taken into account. First, the PCSS included questions measuring different types of political knowledge: about people (e.g. the name of the Belgian prime minister), about the rules of the game (e.g. who elects the European Parliament) and about the substance of politics (e.g. policy decisions about EU enlargement) (Delli Carpini & Keeter, 1996). These questions were about both the national level and the EU level (Fraile, 2013). Second, the survey included eight knowledge questions which is a relatively large number of items to measure political knowledge. Third, to be sure that the survey included items of varying difficulty, the researchers conducted pre-tests among a smaller sample of adolescents to assure differentiation between respondents with low and high levels of political knowledge (Pietryka & MacIntosh, 2013).

To test whether these considerations led to the aimed measurement, we first calculated the frequency of correct and wrong answers to each question. One question was removed for the formation of the knowledge scale because 94% of the respondents answered the question[i] correctly. As nearly all respondents gave the correct answer, this question does not add any information about the different knowledge levels of respondents (Jennings, 1996). Furthermore, the distribution of none of the questions asked indicated that respondents randomly guessed the answer. All questions had 4 response options[ii] and it was never the case that each response option was chosen by about 25% of the respondents. Second, we plotted the distribution of the knowledge scale (see Figure 1). The figure shows that the distribution of the data closely approximates the shape of the normal distribution and that respondents are spread from having a very low score to having a very high score. The mean score on the knowledge scale is 52 per cent, which indicates that on average, respondents answered more

than half of the knowledge questions correctly. We therefore presume that both the content of the questions asked and the distribution of the responses show that we can use this scale as a valid measurement for political knowledge. The measure of political knowledge will serve as the dependent variable in our analyses.

Figure 1. Distribution scores knowledge test



Source: PCSS 2012
Note: Sum scores are calculated and rescaled to range between 0 and 1.

We operationalize the way in which mediating institutions can influence the development of political knowledge by including measures of exposure of the adolescent to the political and social views of three mediating institutions. This exposure could be in an interactive and in a non-interactive way. Discussions with parents and with peers are both measures for interactive exposure to political and social views, following the news is a measure for non-interactive exposure. For the measurement of discussion with parents, the adolescents were asked how often they have talked about the EU with their mother, how often they have talked about the EU with their father, how often they have talked about politics with their mother and how often they have talked about politics with their father. All four questions measure the amount of political discussion they had with their parents in the past. The

questions had response options on a 4-point scale ranging from ‘never’ to ‘often’. A factor scale based on a principal component analysis was constructed as a general measure for political discussion with parents (Cronbach’s α: 0.845 Eigenvalue 2.738, explained variance 68.5 %). Discussing political and societal issues with friends was also measured on a 4-point scale, ranging from ‘never’ to ‘always’. The non-interactive exposure to news issues in the media was measured by the question ‘How often do you read, watch or listen to the news?’. Five response options were offered, ranging from ‘never’ to ‘daily’. This question measures content specific media use (i.e. news items). By using these three mediating institutions, the distinction between information-rich and less information-rich contexts is picked up as well. Parents and news media function as measures for contact with information-rich mediating institutions.

As control variables we include political interest, gender and the number of books at home on the individual-level. On the school-level we control for the educational track. We control for political interest because it has been shown that this is related to both high levels of political discussion and high levels of political knowledge (Dimitrova et al., 2011; Eveland, Hayes, Shah, & Kwak, 2005; Norris, 2000). The adolescents are asked how interested they are in societal issues and politics. Responses vary on a 4-point scale ranging from ‘not interested’ to ‘very interested’. Gender is included as a control variable because there tends to be a gender gap between males and females, where male respondents tend to know more about politics (Mondak & Anderson, 2004). The number of books there is at home are included as an indicator for the socio-economic status of the adolescent because previous research has also clearly exposed a knowledge gap between different socio-economic status groups. The number of books at home is a commonly used measure in research on adolescents (Quintelier, Stolle, & Harell, 2012). On the school-level we control for the educational track followed by the adolescent. Especially in the Flemish school system where pupils are strongly clustered according to cognitive skills in different educational tracks (where pupils with the highest cognitive skills are typically enrolled in general education and pupils with the lowest cognitive skills are typically enrolled in vocational education), it is expected that adolescents in general education are more politically knowledgeable than adolescents in other educational tracks (Van Praag, Boone,

Stevens, & Van Houtte, 2013). General education is taken as the reference category and dummies are included for technical education, vocational education and artistic education.

Analysis

As the respondents in our sample are clustered in schools, we will calculate multilevel models to test the relative importance of parents, peers and media in the development of political knowledge. First, however, we present a few descriptive statistics about the main dependent and explanatory variables to get an impression of how they are distributed in the data and we test the bivariate relationship between the mediating institutions and political knowledge. Descriptive statistics about the other used variables and full question wordings of all used survey items are presented in Appendix I.

Descriptives

We find that 52 per cent of the adolescents answered at least half of the knowledge questions correctly. As in most research in this field, a t-test shows that boys have a significantly higher score than girls (respectively 0.570 and 0.499, $p<0.001$). We also find significant differences between adolescents with a different socio-economic status. This confirms the existence of a knowledge gap based on socio-economic status. Adolescents who live in a family with a higher socio-economic status score significantly higher on political knowledge (Pearson's correlation (r)= 0.152; $p<0.001$) than adolescents in families with a lower socio-economic status. Furthermore, we find different scores among adolescents in different educational tracks. Respondents in general education have a mean score of 0.598 (SE= 0.005), in technical education the mean is 0.519 (SE= 0.006) and in vocational education the mean score is 0.410 (SE= 0.008). All these means differ significantly. For artistic education the mean score is 0.505, but the standard error (SE) is 0.022, so this score does not differ significantly from the respondents in technical education.

The mean score of political discussion with parents is 0.86/3. This indicates that the respondents have not talked very often about politics with their parents. Likewise, adolescents tend not to talk very often with their peers about political and social issues (mean score 0.65/3). The mean

score for following the news in media is 2.48/4, so respondents get mostly in contact with the news media as a mediating institution.

As we now have a better view on the distribution of political knowledge and exposure to the mediating institutions in our study, we will test the bivariate relationship between the importance (in terms of more exposure) of each mediating institution and political knowledge. The Pearson's correlations presented in Table 1 show that we can expect a significant relationship between exposure to the influence of each mediating institution and political knowledge. Political knowledge is most strongly correlated with discussing political and social issues with parents ($r= 0.237$, $p<0.001$) and with following news in the media ($r= 0.221$, $p<0.001$). Political knowledge correlates positively with discussing political and social issues with peers to a smaller extent ($r= 0.096$), but the relationship is still highly significant ($p<0.001$). From these first bivariate tests, we can expect a significant relationship between the exposure to the different mediating institutions and political knowledge. We especially expect a strong influence of the family, a context which is both interactive and information-rich, but multilevel analyses are needed to draw more valid conclusions.

Table 1. Bivariate correlations mediating institutions and political knowledge

	Political knowledge	Discussion parents	Discussion peers	Media news
Political knowledge	1			
Discussion parents	0.237***	1		
Discussion peers	0.096***	0.313***	1	
Media news	0.221***	0.318***	0.243***	1

Source: PCSS 2012

Note: The presented coefficients are Pearson's correlations.*** $p<0.001$, using sample weights as proposed in (Hooghe et al., 2012).

Multilevel analyses

As we have seen that political knowledge varies between individuals and between groups and that it is correlated with exposure to different mediating institutions, we can now turn to the multilevel analyses in which the importance of the different mediating institutions for the development of political knowledge is tested while controlling for a number of relevant covariates.

As the data are gathered in a clustered way (surveying adolescents in schools), we start by testing whether this clustered structure is also found in the level of political knowledge of the respondents. The Null model (see Table 2) shows that a substantial part of the variance in political knowledge is indeed located at the school-level. The intra-class correlation (ICC) of 16.2 per cent indicates that almost one sixth of differences in political knowledge scores can be explained by school-level characteristics. This clustered structure in the data proves that it is important to use multilevel models that control for this clustering and to add school-level variables that could explain these differences between schools.

In model I, the main explanatory variables measuring exposure to the mediating institutions are included in the model. The model shows that when we include the influence of all three mediating institutions, only the family and news media seem to have an influence on the political knowledge of adolescents. The role of peers (which was still visible in the bivariate correlation test as shown in Table 1) diminishes when we also include parents and media in the analysis. The knowledge scale ranges from 0 to 1, which means that a score of 0.7, for example, indicates that a 70 per cent of the questions were responded correctly. Therefore, the positive coefficient for discussion with the parents (0.021) shows that respondents are expected to give 2 per cent more correct answers for every step on the scale of discussing politics with their parents. As this scale ranges from 1 to 4, an adolescent that scores 4 (this corresponds to often discussing politics) is expected to score 8 per cent higher on political knowledge than an adolescent that has never talked about politics with his or her parents. Following the news in media can make a difference up to 10 per cent between an adolescent who never follows the news and an adolescent who daily follows the news.

In model II the control variables are added to test whether (part of) the relationship between the mediating institutions and political knowledge can be explained by one of the control variables.

The model shows that the highly significant positive relationships between exposure to the political and societal views of parents and news media on the one hand, and political knowledge on the other hand hold after the inclusion of these controls. The significant finding that girls know less about politics than boys does not diminish this relationship. Also the school-level variable educational track does not affect the importance of parents and news media. The latter control is included to explain the different knowledge levels between schools as adolescents are grouped in different educational tracks according to their cognitive skills. The analysis confirms that adolescents are clustered in educational tracks with higher (general education) or lower levels of political knowledge (technical or vocational education). The inclusion of this control reduces the school-level variance with 75 per cent, thus educational track indeed explains most of the clustering of adolescents by political knowledge in schools.

Additionally, the coefficients presented in model II are standardized coefficients in order to test the relative importance of discussion with parents and watching, listening or reading about the news in media. In model I, we can see that parents and news media play a role in the development of political knowledge, in contrast to peers. However, we cannot compare the relative importance of each significant mediating institution in this model because political discussion with the parents and following the news in the media are measured on a different scale (respectively 4 and 5 response options are offered). We therefore need standardized coefficients, as presented in model II. Here we see that following the news in media has a higher coefficient (0.120, $p<0.001$) than discussing political and social issues with the parents (0.080, $p<0.001$), but however their different size, the Wald test shows that both coefficients are not significantly different.

Therefore, we conclude that the first hypothesis is confirmed that the content of the mediating institution is crucial for the development of political knowledge. Both following the news media and discussing political matters with parents proved to contribute significantly to the development of political knowledge, in contrast to discussing politics with peers. Both mediating institutions have in common that they provide an information-rich context for the adolescent. However, they differ on the way in which adolescents are exposed to political knowledge. While discussing politics with parents is an interactive setting, adolescents only receive the views of the media without being able to give their

own input when they follow the news in mass media. In the second hypothesis, the expectation is presented that political knowledge is more likely to be developed in an interactive information-rich context than when there is only a one-way communication of information. The finding that peers, which only present an interactive mediating institution do not significantly contribute to the development of political knowledge, shows that only interactive exposure is not sufficient. The finding that discussing politics with parents does not have a stronger influence on political knowledge than following media news further indicates that the interactive way of processing information does not add to the development of political knowledge. We thus conclude that being an information-rich context is the only necessary condition for the development of political knowledge in our test. It does not matter whether this information is processed in an interactive way.

Table 2. Multilevel regression with political knowledge as dependent variable

	Null model		Model I: Discussion		Model II: Full model with standardized coefficients	
	B	SE	B	SE	β	SE
Intercept	0.501***	0.011	0.420***	0.013	0.424***	0.048
Individual-level controls						
Gender (female =1)					-0.382***	0.040
Books at home					0.003	0.022
Political interest					0.028	0.020
Explanatory variables						
Discussion parents			0.021***	0.004	0.080***	0.019
Discussion peers			0.001	0.006	-0.008	0.018
Media news			0.024***	0.003	0.120***	0.018
School-level controls						
Educational track (ref. general education)						
Technical					-0.384***	0.069
Artistic					-0.405***	0.066
Vocational					-0.826***	0.080
Variance school-level	0.006	0.001	0.004	0.001	0.025	0.008
Variance individual-level	0.031	0.001	0.030	0.001	0.779	0.023
ICC	16.2%		12.6%		3.1%	
Log pseudolikelihood	859.883		854.309		-3494.028	

Source: PCSS 2012-2013

Notes: N (individual-level)= 2,651; N (school-level)= 62; *p<0.05, **p<0.01, ***p<0.001, using sample weights as proposed in (Hooghe et al., 2012).

Discussion

The analyses show that the family and news media are the strongest mediating institutions for the development of political knowledge among adolescents. Discussing political matters with parents and reading, watching or hearing the news in mass media are significantly and positively related to adolescents' levels of political knowledge. As hypothesized, mediating institutions which provide an information-rich setting are more important for the development of political knowledge. Discussing politics with peers is thus less effective in the development of political knowledge because peers usually have a similar level of political knowledge as the adolescents. Therefore, adolescents are less likely to receive new information through interaction with their peers than through interaction with their parents or following news media. Parents and news media will contribute more to the development of an information-rich context in which adolescents can learn about politics. Parents tend to have higher levels of political knowledge than adolescents and mass media news is more varied in content than discussions with peers as media news obviously aims at delivering information to its audience.

These findings lead us to drawing two main conclusions. First, it is necessary that the mediating institution provides an information-rich context as both information-rich contexts contribute to the development of political knowledge in contrast to the not information-rich context of peers. Second, the results in this paper suggest that interaction about political issues as such is not a sufficient condition to enhance political knowledge. The characteristics of the discussion partner make a significant difference, as political discussions with parents do contribute to the development of political knowledge, but discussions with peers do not. Engaging in political discussions is a meaningful participatory activity and should obviously be encouraged, but for adolescents to effectively gain new insights on political issues, being exposed to an information-rich mediating institution seem to be the most efficient way of learning. These findings are in line with Eveland's (2004) argument that discussion generated elaboration takes place within an information-rich setting. Also, an interactive setting does not prove to be a necessary condition in order to develop political knowledge as political knowledge can also be developed when being exposed to a non-interactive mediating institution such as the mass media.

If we then sketch a picture of the settings in which adolescents learn, we can conclude that the bulk of the development of political knowledge occurs within the family setting as political discussion with parents and following the news usually takes place within a family setting. Adolescents tend to watch television, read the newspaper and listen to the radio at home, and therefore most media consumption is taking place in this setting. Often, parents also influence the availability of media incentives to their children by buying newspapers or watching news channels on television while their children are around. The effects of media use and discussion with parents can even be linked, as mass media news might even encourage discussion within the family about the topics covered (Eveland, 2004). This way, our findings are most in line with those of earlier studies who argued that particularly within adolescence the family setting functions as the main mediating institution in which not only political attitudes and preferences, but also political knowledge is developed (Jennings, 1996). The results from this study therefore underscore once more that politicization within the family is essential for the development of political knowledge, and consequently to address disengagement among young citizens.

Finally, a number of limitations of this study should be addressed. Although we have used a large quantitative study, the PCSS data do have a number of shortcomings. While the data do provide us with reliable information on adolescents' exposure to media, peers and parents, they are limited when it comes to the measurement of media use. We did find that following the news in mass media *in general* contributes to the development of political knowledge, but the data did not allow us to distinguish between different types of news media use. Therefore, the specific question of how different (and new) media formats can contribute to the development of political knowledge in different ways remains a challenge for future research.

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Appendix I. Descriptives and question wording used variables

Variable	Question wording	Mean	Min.	Max.
Political interest	How interested are you in societal issues and politics? 1. Not interested 2. A little interested 3. Interested 4. Very interested	2.08	1	4
Socio-economic status	How many books do you have at home? 1. No 2. 1-10 3. 11-50 4. 51-100 5. 101-200 6. 201-500 7. More than 500	3.76	1	7
Discussion parents	How often have you talked about the EU with your mother so far? 1. Never 2. 1 to 2 times 3. Several times 4. Often	1.77	1	4
	How often have you talked about the EU with your father so far? 1. Never 2. 1 to 2 times 3. Several times 4. Often	1.90	1	4
	How often have you talked about politics with your mother so far? 1. Never 2. 1 to 2 times 3. Several times 4. Often	2.05	1	4
	How often have you talked about politics with your father so far? 1. Never 2. 1 to 2 times 3. Several times 4. Often	2.23	1	4
Discussion peers	How often do you talk about political and social problems (e.g. topics in the news) with your friends? 1. Never 2. Sometimes 3. Often 4. Always	1.66	1	4
Media news	How often do you read, watch or listen to the news? 1. Never 2. Less than once a week 3. Once a week	3.67	1	5

4. Several times a week
5. Daily

Variable	Question wording	Frequency
Political knowledge wave 1	Who is Belgium's Prime Minister? 1. Bart De Wever 2. Yves Leterme 3. Elio Di Rupo* 4. Kris Peeters	83.53%
	Who is the Flemish Minister-President? 1. Kris Peeters* 2. Bart De Wever 3. Alexander De Croo 4. Yves Leterme	48.11%
	Who are the members of the Flemish government? 1. Members of the Flemish parliament 2. Flemish provincial Governors 3. Flemish ministers* 4. Flemish party leaders	39.36%
	What is one requirement for a country to be allowed to join the European Union? 1. The EU considers it to be a republic 2. The EU considers it to be democratic* 3. It must be a member of the United Nations 4. It must have a written constitution	43.29%
	Who is the President of the European Council? 1. Karel De Gucht 2. José Manuel Barroso 3. Guy verhofstadt 4. Herman Van Rompuy*	84.98%
	Who votes to elect Members of the European Parliament (MEPs)? 1. National governments of European Union countries 2. Citizens in each European Union country* 3. Heads of State of European Union countries (presidents, kings, queens, etc.) 4. The European Commission (EC)	20.00%
	How many countries are member states of the European Union? 1. 1 to 10 2. 11 to 20 3. 21 to 30* 4. 31 to 40	64.74%

	Here are some statements about the possible enlargement of the European Union (i.e. the possibility of more countries joining the European Union). Which of the following statements is true? 1. The European Union has decided not to accept any more countries as new members 2. The European Union may accept more countries in the future but there are currently no countries being considered as candidates for membership 3. The European Union may accept more member countries in the future and is currently considering granting membership to some specific countries* 4. The European Union has decided to only accept new member countries if any existing member countries decide to leave the European Union	69.00%
Gender	I am a…	
	Boy	54.06%
	Girl	45.94%
Educational track	In which education track are you enrolled?	
	general education	58.39%
	technical education	32.69%
	artistic education	0.96%
	vocational education	7.95%

Source: PCSS 2012-2013

Note: The correct answers for the items measuring political knowledge are indicated with a star (*).

Notes

[i] Four flags were presented to the respondents out of which they had to select the European flag.

[ii] No 'don't know'-option was presented to the respondents in order to reduce guessing bias caused by gender and personality traits. Research has shown that certain groups of respondents are less inclined to guess when a 'don't know'-option is presented than others (such as females and respondents with less self-confidence). Discouraging this option by not explicitly presenting the 'don't know'-option reduces this bias as almost no respondents leave the knowledge questions blank, so all respondents are evenly inclined to guess when they are not fully sure of the correct answer (Mondak & Anderson, 2004; Prior & Lupia, 2008).